

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
2 October 2003 (02.10.2003)

PCT

(10) International Publication Number
WO 03/081216 A2

(51) International Patent Classification⁷: **G01N 21/35**

(21) International Application Number: **PCT/US03/06710**

(22) International Filing Date: **17 March 2003 (17.03.2003)**

(25) Filing Language: **English**

(26) Publication Language: **English**

(30) Priority Data:
60/365,529 **20 March 2002 (20.03.2002)** **US**

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(81) Designated States (national): **AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.**

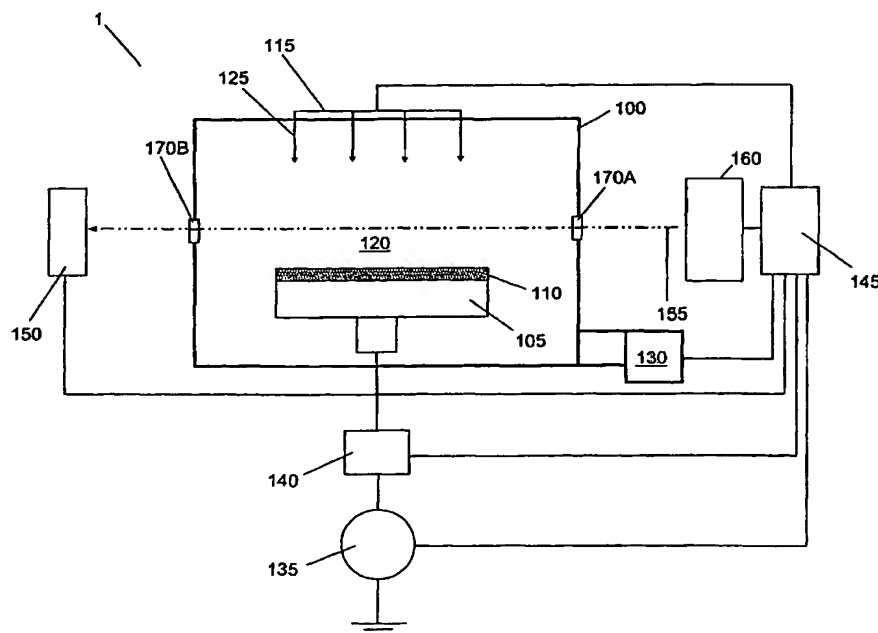
(84) Designated States (regional): **ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).**

Published:

— without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: **PROCESS MONITORING USING INFRARED OPTICAL DIAGNOSTICS**



(57) Abstract: A method and apparatus for real-time monitoring of the substrate and the gaseous process environment in a semiconductor process step is described. The method uses infrared spectroscopy for in-situ analysis of gaseous molecular species in the process region and characterization of adsorbed chemical species on a substrate. The process monitoring can be applied to endpoint- and fault detection in etching and deposition processes, in addition to chamber cleaning and chamber condition steps.

WO 03/081216 A2